CLAIMS 1, 3-21 CURRENTLY AMENDED; CLAIM 2 CANCELED

I CLAIM

1. (CURRENTLY AMENDED) A slurry filtration system for batch processing of a slurry to separate slurry liquids from slurry solids ~~apparatus~~ including in combination:

a) a pressure filter apparatus comprising at least one upper plate with an internal cavity, at least one lower plate with an internal cavity, and a filter media, said upper and lower plates adapted to close and seal against each other mating said internal cavities to form a sealable pressurizable filtration chamber with said filter media between said sealed plates, means for opening and closing said filtration chamber by moving said plates with respect to each other, means for moving said filter media through the formed filtration chamber when said plates are open, means for introducing a batch of slurry, fluids and gases into said pressurized filtration chamber when said plates are closed, means for withdrawing fluids and gases from said chamber through said filter media and retaining slurry solids as a filter cake on said filter media within said internal cavities of said filtration chamber ~~lower plate~~;

b) a source of slurry to be filtered, means connecting said source of slurry to said means for introducing fluids into said filtration chamber and introducing a batch of said slurry to fill said filtration chamber ;

c) a plurality of means for performing pretreatment procedures on said slurry prior to introducing said slurry batch into said filtration chamber;

d) means for analyzing characteristics of said slurry including at least temperature, chemical characteristics and viscosity ;

e) means for sensing temperature and pressure within said filtration chamber when said plates are closed and when said slurry batch has been introduced;

f) and a controller means for receiving information representing said analyzed characteristics, said controller including

i) means for controlling said means for performing pretreatment procedures on said slurry,

ii) means for controlling opening and closing of said plates,

Iii) [and] means for moving said filter media,

iv) and means for controlling said means for introducing fluids and gases and withdrawing fluids from said slurry batch as filtrate and forming a filter cake within said filtration chamber,

g) said plurality of means for performing pretreatment procedures on said slurry prior to introduction of said slurry batch into said filtration chamber comprising

i) a source of heat for controlling said slurry temperature,

ii) a source and means for adjusting chemical characteristics of said slurry including means for adjusting said slurry in pH,

iii) a source and means for introducing coagulant materials to said slurry,

iv) at least one source and means for introducing polymer materials to said slurry,

v) at least one mixing means for mixing of said slurry and said sources after performing said pretreatment procedures to produce a treated and conditioned slurry for batch introduction into said filtration chamber, and

h) each of said plurality of sources and means and said mixing means being controlled by said controller,

i) whereby a batch of slurry can be analyzed, adjusted, mixed, introduced into said pressure filter apparatus and then efficiently separated into liquids and solids.

2. (CANCELED)

3. (CURRENTLY AMENDED) The slurry filtration ~~apparatus~~ system of claim 1 ~~with the addition~~ wherein said means for introducing fluids and gases for withdrawing fluids in said filtration chamber includes sources of gas and fluid ~~liquid sources~~ connected to said pressure filter apparatus for introducing wash fluids, liquid clearing or cake forming gas, steam, or drying or conditioning gas for said chamber when said plates are closed.

4. (CURRENTLY AMENDED) The slurry filtration ~~apparatus~~ system of claim [1] 3 wherein each of said sources for introducing fluids and gases are under control of said controller and each ~~source~~ of said sources includes means for producing feedback information to said controller.

5. (CURRENTLY AMENDED) The slurry filtration ~~apparatus~~ system of claim 1 including means within said filtration chamber for sensing characteristics of ~~cake formation~~ said formed filter cake within said filtration chamber.

6. (CURRENTLY AMENDED) The slurry filtration ~~apparatus~~ system of claim [1] 3 wherein said liquid clearing or cake forming ~~gas source~~ fluid and gases sources includes controlled pressurized fluids for initially clearing free liquid from said slurry introduced into said filtration chamber to form ~~a filtration~~ said filter cake of solids from said slurry and to force said free liquid out of said filtration chamber.

7. (CURRENTLY AMENDED) The slurry filtration ~~apparatus~~ system of claim [1 3 wherein said steam source includes a steam generator for producing dry superheated steam at a controlled pressure and temperature above the gas/liquid phase of said steam for introducing dry steam into said filtration chamber for extracting liquids from [a] said slurry and for forming said filter cake ~~formed~~ in said filtration chamber.

8. (CURRENTLY AMENDED) The slurry filtration ~~apparatus~~ system of claim [1] 3 wherein said source of drying or conditioning gas includes gas at a temperature and pressure

for further drying of said filter cake and/or for controlling the temperature of said filter cake.

9]. (CURRENTLY AMENDED) The slurry filtration ~~apparatus~~ system of claim [1 3 including means under control of said controller for venting said filtration chamber to reduce the pressure within said filtration chamber after said wash fluids, or liquid clearing or cake forming gas, steam, or drying or conditioning gas have been introduced into said filtration chamber.

10 (CURRENTLY AMENDED) The slurry filtration ~~apparatus~~ system of claim1 wherein said filter plate moving means for opening and closing said plates causes release of pressure within said chamber when said plates are separated and to seal said plates when said plates are closed to form said sealable pressurizable filtration chamber to permit elevated pressure to be maintained within said filtration chamber.

11. (CURRENTLY AMENDED) The slurry filtration ~~apparatus~~ system of claim 1 including means for recycling heat from said sources for introducing fluids and gases including sources external to said heat source within said assembly.

12. (CURRENTLY AMENDED) The slurry filtration ~~apparatus~~ system of claim 1 including means for recycling slurry filtrate withdrawn fluids from said slurry from said ~~filter~~ filtration chamber to said ~~slurry~~ source of slurry.

13. (CURRENTLY AMENDED) The slurry filtration ~~apparatus~~ system of claim 1 including mixing means associated with each of said ~~sources~~ means and sources for performing procedures for mixing said ~~source input~~ sources with said slurry stream.

14. (CURRENTLY AMENDED) The slurry filtration ~~apparatus~~ system of claim 1 wherein said ~~coagulant~~ source of coagulant materials includes materials for selectively binding solids suspended within said slurry to assist in formation of interstices in said filter cake formed

in said filtration chamber.

15 (CURRENTLY AMENDED) The slurry filtration ~~apparatus~~ system of claim 1 wherein said ~~polymer sources~~ source of polymer materials include materials for selectively binding solids suspended within said slurry to assist in selectively ~~filtering~~ withdrawing fluids from said slurry as filtrate and forming a filter cake of retained slurry solids.

16. (CURRENTLY AMENDED) A method for operating a pressure filter ~~apparatus~~ system for separating liquids from solids in a slurry stream comprising the steps of:

a) analyzing the characteristics of said slurry,

b) controlling the temperature, chemical characteristics and viscosity of said slurry,

c) pretreating said slurry by adding and mixing materials to said slurry to coagulate, flocculate or precipitate solid materials in said slurry and to produce a treated slurry,

d) introducing a portion of said ~~slurry stream of~~ treated slurry into a closed, sealed and pressurizable filtration chamber in ~~said~~ a pressure filter system, said filtration chamber including a filter media and support porous means adapted to pass liquids of said slurry while retaining solids from said slurry on said filter media,

e) introducing slurry treating fluids and gases to said filtration chamber to pressurize said filtration chamber, said treating fluids and gases including wash fluids, liquid clearing or cake forming gases, steam, or drying or conditioning gas ~~to said chamber~~ to initiate separation of liquids from said slurry and form a filter cake of solids on said filter media,

f)controlling said pressure within said filtration chamber to facilitate passage of said introduced fluids and gases through said filter cake,

g)controlling the pressure within said filtration chamber to prepare for repeat venting or opening of said filtration chamber,

h) opening said filtration chamber to permit said filter media to carry said filter cake from said filtration chamber,

i) and closing said filtration chamber and repeating said steps of a) through h) for repeated processing of additional portions of said slurry stream.

17. (CURRENTLY AMENDED) The method of claim 16 wherein each of said steps is performed under control by a controller having preprogrammed operating procedures and feedback information from each of said operating steps, said controller adapted to control said ~~pre-treatment~~ pretreating slurry steps and said steps of introducing slurry treating fluids and gases for treating said slurry within said pressurized filtration chamber.

18. (CURRENTLY AMENDED) The method of claim 16 wherein said heating of said slurry stream is accomplished with recycle heat from within said ~~process~~ filter assembly, from recompression of gases or fluids used in said method, and/or from external sources associated with said filter ~~apparatus~~ system.

19. (CURRENTLY AMENDED) The method of claim 16 wherein said introduced steam is controlled in pressure and temperature to maintain said steam in a gas state within said filtration chamber for removing liquids from said formed cake, and then reducing the pressure or temperature of said steam to lower the temperature within said filtration chamber before said filtration chamber is opened.

20. (CURRENTLY AMENDED) The method of claim 16 wherein said filter ~~apparatus~~ filtration chamber of said filter system is controlled in temperature prior to the introduction of said slurry to permit treatment of said slurry for liquid separation without causing said formed cake to become damaged, then increasing said pressure to further withdraw liquids from said formed cake, then reducing said pressure to cause formation of fissures within said formed cake to permit removal of additional liquids from

said formed cake under gas pressure.

21. (CURRENTLY AMENDED) The method of claim 16 with the addition of a diaphragm within said closed filtration chamber to contain said introduced slurry between said filter media and said support means, and means for compressing said diaphragm against said filter media to form said cake.